

Remarks

Applicant appreciates the Examiner's request to clarify the claimed invention, for example, with respect to the claimed means for modeling in claim 61. The following remarks are believed to clarify the issue and overcome the sole pending rejection.

The Office Action dated May 31, 2006, indicated that claims 63-87 are allowed, and claim 61 is rejected under 35 U.S.C. § 103(a) over Applicant's Fig. 3 in view of Thomson *et al.* (U.S. 6,498,820).

Applicant appreciates the indication of allowance for claims 63-87.

With respect to the rejection of claim 61, Applicant respectfully traverses. The rejection should be removed because several of the limitations (e.g., the limitations directed to "means for creating a model") fail to correspond to the asserted combination of references. Pursuant to the requirement of 35 U.S.C. §112(6) and the related sections of the MPEP, any structure and/or function taught in the Specification that differs from asserted prior art precludes an assertion that the combined teachings correspond to the claimed invention.

Moreover, the Examiner appears to be improperly limiting the claimed invention to broadly defined components instead of considering the claims as a whole, including specific hardware and software implementations supported in the Specification. Such an interpretation is improper because, for example, "a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software." *In re Alappat*, 33 F.3d 1526, 1544, 31 USPQ2d 1545, 1557 (Fed. Cir. 1994); *also*, MPEP § 2106(II).

More specifically, the Examiner asserts that Applicant's claimed means uses identical circuit components as Applicant's FIG. 3 because FIG. 3 corresponds to FIG. 7. Applicant submits that the Examiner has failed to consider Applicant's Specification as a whole, apparently over-relying on the figures, while not addressing the associated discussion in the Detailed Description. A comparison of the relevant discussion of FIG. 3 (*see* page 3, line 26 to page 5, line 16) with the discussion of the modeling means (as discussed below) shows that the circuit components and/or software implementation of FIG. 7 are distinct from those of FIG. 3. Moreover, the asserted combination with the

Thomson '820 reference fails to teach correspondence for the limitations of claim 61 concerning "means for creating a model."

The object of the Thomson '820 reference is to remove noise corresponding periodic (single frequency) interference, such as interference introduced by power lines or the like (Abstract and Col. 3, lines 51-61). Non-periodic signals (*e.g.*, data, crosstalk and white noise) are treated differently from the periodic interference (see Col. 5, lines 47-63). More specifically, the Thomson '820 reference builds a model of periodic interference by removing all other signals (see Col. 6, lines 60-64). Moreover, the Thomson '820 reference teaches the periodic interference must be a single, repeating frequency. Thus, the asserted combination of the Thomson reference with Applicant's FIG. 3 would only provide a model for interference at single frequency (at any one time) and for a single line. It appears that the Examiner's attempted modification of Applicant's FIG. 3 simply repeats this model for each data line (312) of Applicant's FIG. 3. Accordingly, the Examiner's asserted combination appears to be merely a series of independent models corresponding to periodic (single frequency) interference of each singular line.

In contrast, the modeling structure and/or function taught in the Applicant's Specification includes of structures for creating a model of line, signal and interference characteristics. More specifically, the Specification teaches a number of different models of line, signal and interference characteristics that differ from the Examiner's asserted combination. One such model takes into account crosstalk interference between data signals (as opposed to periodic interference on a single line). *See, e.g.*, FIG. 8 and Page 19, Equation 2, which includes crosstalk interference term H_{ji} . Other models include coordination between several line, signal and interference characteristics. For example, block 715 is operative with block 716 to create the model as claimed "based on signals actually carried" (emphasis added). As indicated in the instant Specification at page 17, lines 20-22 (and responsive to the Examiner's most recent comments), "In Figure 7 the line and signal characteristics can be acquired for all (or a subset of) lines and can be coordinated or otherwise considered in a joint manner." Thus, by coordinating or otherwise considering in a joint manner, the acquired characteristics can

be used to create a model. This coordination or consideration in a joint matter is not taught by the Examiner's asserted combination and can be accomplished using various examples. For instance, FIG. 8 and the relevant discussions provide examples of modeling accomplished by blocks 715 and 716. More specifically, the discussion of FIG. 8 at page 19, line 8 indicates that "The channel from user i to j is modeled as an ISI channel...." The Specification provides further details as to the modeling structure. In one instance, the structure for creating a model includes general-purpose machines or specialized apparatus (*See, e.g.,* page 44, lines 3-26) with software or hardware related to more specific functions, such as those related to equations 19-22 and the relevant discussion at page 27 *et al.*

Accordingly, the Examiner's asserted combination does not teach each of the claimed limitations because it does not teach correspondence with the structures described in Applicant's Specification. More specifically, the Examiner's asserted combination appears to only teach (independently) repeated modeling of periodic interference for each line, which does not correspond to the structure taught by the Applicant's Specification. For example, the asserted combination does not teach modeling crosstalk interference between data lines. The Examiner's asserted combination also fails to coordinate or consider in a joint manner the line and signal characteristics for all (or a subset of) lines as well as the various other modeling techniques and equations taught by Applicant's Specification. Without a presentation of correspondence to each of the claimed limitations, the Section 103(a) rejection cannot be maintained and Applicant respectfully requests that it be withdrawn.

In view of the above discussion, Applicant believes that each of the rejections has been addressed and/or overcome and the application is in condition for allowance. A favorable response is requested. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is encouraged to contact the undersigned at (651) 686-6633.

Respectfully submitted,

CRAWFORD MAUNU PLLC
1270 Northland Drive, Suite 390
St. Paul, MN 55120
651/686-6633

Dated: July 26, 2006

By: 

Robert J. Crawford
Reg. No. 32,122